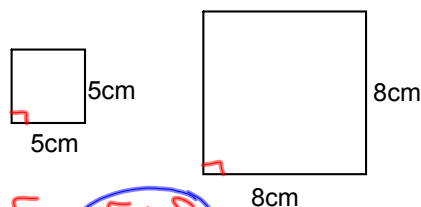


11.3 Perimeter and Area of Similar Figures

S.F. $5:8$

$$P = 20\text{cm}$$

$$A = 25\text{cm}^2$$

$$P = 32\text{cm}$$

$$A = 64\text{cm}^2$$

$$\text{Ratio of Perimeters } \frac{20}{32} = \left(\frac{5}{8}\right)$$

$$\text{Ratio of Areas } \frac{25}{64} = \frac{5^2}{8^2}$$

Theorem 11.7 Area of Similar Polygons
If 2 polygons are similar with the lengths of corresponding sides in the ratio of $a:b$, then the ratio of their areas is $a^2:b^2$.

S.F.

The scale factor of 2 similar rectangles is 9:5.

What is the ratio of the perimeters?

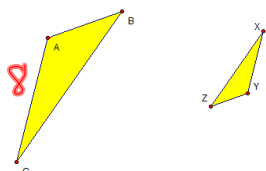
What is the ratio of the areas?

R.P.? 9:5

R.A.? 81:25

If the area of the 1st rectangle is 42cm^2 , what is the area of the 2nd rectangle?

$$\frac{81}{25} = \frac{42}{A} \quad A \approx 13.0\text{cm}^2$$



$$\triangle ABC \sim \triangle YZX$$

$$AC = 8\text{cm}$$

$$YX = ? \text{ 4cm}$$

$$\text{Area } \triangle ABC = 32\text{cm}^2$$

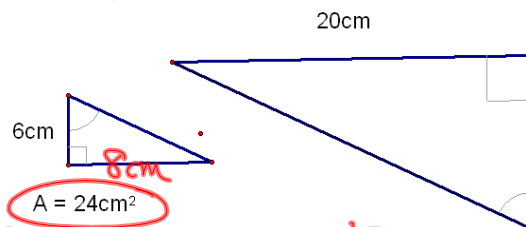
$$\text{Area } \triangle YZX = 8\text{cm}^2$$

$$\text{Area } \frac{32}{8} = \sqrt{\frac{4}{1}}$$

S.F. 2:1

$$\frac{2}{1} = \frac{8}{x}$$

Are the triangles similar?



$$A = 24\text{cm}^2$$

$$24 = \frac{1}{2} b \cdot 6$$

$$8 = \frac{3b}{b}$$

S.F. $\frac{8}{20} = \frac{2}{5}$

$$\frac{4}{25} = \frac{24}{A}$$

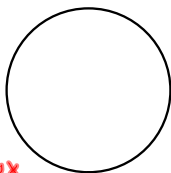
11.4 Circumference and Arc Length

$$C = 2\pi r$$

$$r = 7 \text{ cm}$$

$$C = 14\pi \text{ cm exact}$$

$$C \approx 44.0 \text{ cm approx}$$



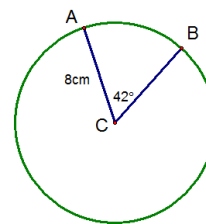
$$\text{Arc Length} = \frac{\text{Angle}}{360^\circ} \cdot 2\pi r$$

$$\widehat{AB} = \frac{42}{360} \cdot 16\pi$$

$$= \frac{28\pi}{15} \text{ cm}$$

$$\approx 5.9 \text{ cm}$$

no 'm'
means length

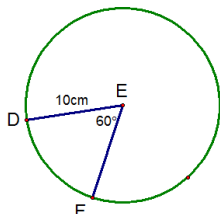


$$\text{Arc Length} = \frac{\text{Angle}}{360^\circ} \cdot 2\pi r$$

$$\frac{60}{360} 20\pi$$

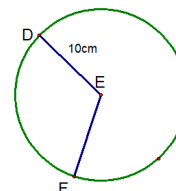
$$= \frac{10\pi}{3} \text{ cm}$$

$$\approx 10.5 \text{ cm}$$



$$\widehat{DF} = 20.2 \text{ cm}$$

$$m\widehat{DF} = \underline{\hspace{2cm}}$$



$$20.2 = \frac{x}{360} 20\pi$$

$$115.7^\circ \approx x$$

work

$$727.2 = x \cdot 2\pi$$

HW
p740-741
#s 5-7, 13, 23
p750-751
#s 11, 12, 17-25